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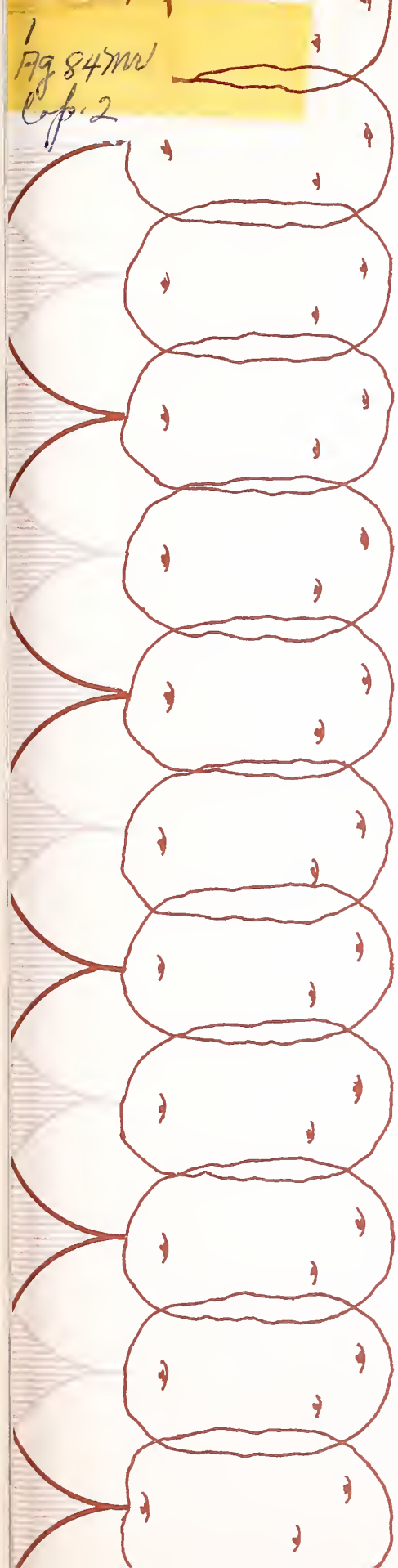

Marketing

VIRGINIA WHITE POTATOES

Buyers' Preferences and Practices

U.S. DEPARTMENT OF AGRICULTURE/FARMER COOPERATIVE SERVICE
MARKETING RESEARCH REPORT NO. 6 8 2

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies, confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

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Contents

	Page
Highlights	ii
Objectives and method of study	2
Trends in the potato industry	3
Production	3
Utilization and consumption	5
Retail marketing	6
Implications to the Virginia industry	8
Buyers' preferences	9
Preferred potato characteristics	9
Preparation desired	11
Container preferences	13
Implications to the Virginia industry	14
Buyers' opinions of the Virginia potato industry	15
Supply and preparation factors	15
Marketing factors	17
Implications to the Virginia industry	19
Buyers' procurement practices	20
Procurement of new potatoes from Virginia	21
Procurement of new potatoes from other areas	22
Implications to the Virginia industry	22
Buyers' suggestions for better industry program	22
Changes noted since 1958	23
Suggestions for improving industry practices	24
Ways to improve marketing	27
Marketing and production contracts	27
Marketing agreements and orders	28
Marketing cooperatives	29
Joint sales program	30
Appendix	31

Highlights

There have been many important developments in the potato industry during the past two decades. Production has been shifting to the more highly specialized areas. At the same time, retail stores have decreased rapidly in number but increased significantly in size. These larger stores, many of which are members of chains, prefer uniform quality potatoes in large lots. Potato growers in Virginia and in many other areas are finding it increasingly difficult to meet these large-scale buyers' requirements.

Farmer Cooperative Service, in cooperation with the Virginia Department of Agriculture and Immigration, made this study at the request of the Virginia potato industry to provide information on: (1) Preferences, practices, and opinions of chainstore, chipper, and itinerant potato buyers; (2) buyers' suggestions as to ways growers might improve their marketing program; and (3) major changes and developments in the potato industry.

We found that several factors have had an important bearing on the marketing program of the Virginia potato industry. These include the concentration of production onto fewer but larger farms, more intense competition among growers for the shrinking number of desirable sales outlets, variations in production, and a general tendency of the industry to produce supplies in excess of those needed to meet demand.

These factors are broad in scope and individual growers or shippers have little control over them. But, by adjusting their marketing practices accordingly, Virginia growers and shippers can strengthen their competitive market position.

Our principal findings as to buyers' preferences, practices, and opinions follow.

- Chainstore, chipper, and itinerant buyers had varied preferences with respect to potato size, variety, washing, precooling, and container size and type. Most buyers wanted round white potatoes of U. S. No. 1 grade.

- Specific preferences of individual types of buyers were:

  Chainstore Buyers.--These buyers favored Katahdin variety potatoes, washed, precooled and packed in 10-pound paper containers. Burlap bags were preferred for larger size packs. The two most popular sizes were potatoes of a 2-inch minimum diameter and those in a size range of 2-1/2 - 3-1/2 inches.

  Itinerant Buyers.--Most of these buyers wanted unwashed, uncooled Pungo variety potatoes having a 2-inch minimum diameter and packed in 10-pound paper containers for consumer packs. For wholesale units, they preferred 100-pound burlap bags.

  Chippers.--Most chippers preferred unwashed and uncooled Sebago potatoes in sizes ranging from 1-7/8 to 4 inches and packed in 100-pound burlap bags.

- Seventy-six percent of the buyers regarded the Virginia industry as equal to other supply

sources for varieties available, adequacy of supply, delivery time, and seven other related marketing practices or services. Six percent rated Virginia better than other supply sources on the factors considered. Buyers rated Virginia lowest on sizing practices, varieties available, grading practices, and reputation for quality. Virginia received its highest rating on time required to make delivery.

- About two-thirds of the chainstore buyers reported obtaining the bulk of their potatoes both from Virginia and from other supply areas at the shipping point. Chippers and itinerants relied exclusively upon shipping-point suppliers for their potatoes. Closer control over quality, quantity, and costs were the major reasons given for this procurement practice.

Major reasons given by the one-third of the chainstore buyers who procured most of their potatoes from the terminal market were that these suppliers could provide quantities in small lots and desired consumer-size packs.

- Buyers had noted changes in potato quality and marketing practices in Virginia during the past 5 years. Most frequently noted were the change from Irish Cobbler to Pungo variety and an increased amount of precooling, washing, and packaging of potatoes into consumer-size units. Chainstore buyers noted that similar changes had taken place in other supply areas.

- All chain and all but three of the chipper and itinerant buyers offered suggestions to Virginia growers and shippers for improving their marketing program. They suggested producing potatoes with better chipping qualities, adhering to more strict grading and sizing practices, and stabilizing prices. Similar suggestions were offered for growers in other supply areas.

In addition to studying these suggestions, Virginia growers should consider marketing contracts, agreements, and orders; marketing cooperatives; and joint sales programs as ways to improve their industry's program.

There is opportunity as well as need for Virginia potato growers and shippers to improve their competitive position. In approaching this task, industry members should consider carefully what type of action will receive maximum grower and shipper support and will best alleviate marketing problems.

Marketing Virginia White Potatoes

Buyers' Preferences and Practices

By Harold K. Jolley and Frank W. Bell[1]

Important developments have taken place in the production and marketing of potatoes during the past two decades. Production has steadily shifted away from low-yielding areas not favorably suited for large-scale operations into more highly specialized areas.

Accompanying the shifts in production have been changes in the market structure. Many small grocery stores have been replaced by large retail stores, primarily supermarkets. These larger stores, many of which are organized into corporate, voluntary, and cooperative chains for merchandising and procurement purposes, require large quantities of uniform-quality potatoes.

To obtain their supplies, many retail organizations have bypassed terminal markets and gone directly to production areas. Competition among growers for the shrinking number of sales outlets has intensified and it has become increasingly difficult for small- and medium-size growers to satisfactorily meet volume and service requirements of the large-scale buyers.

In recent years, growers and shippers of early summer white potatoes have become increasingly concerned about the unfavorable marketing situation on the Eastern Shore of Virginia and have sought ways to develop a more effective marketing program. As a part of this effort, representatives of the industry requested that information be obtained on buyer preferences and procurement practices. Farmer Cooperative Service and the Virginia Department of Agriculture and Immigration jointly initiated this study in 1962 to provide the data.

Two broad factors contribute significantly to the undesirable marketing situation in Virginia. The first stems largely from the impact of developments in the entire potato industry. Improved transportation, along with shifts of production onto larger but fewer specialized farms, enables growers in distant producing areas to compete directly with those in Virginia for nearby markets.

By comparing the sources of carlot unloads of potatoes in 1958-62 in the four eastern

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[1] Harold K. Jolley is an agricultural economist with the Fruit and Vegetable Branch, Marketing Division, Farmer Cooperative Service. Frank W. Bell is a marketing agent with the Virginia Department of Agriculture and Immigration.

markets of New York, Philadelphia, Baltimore, and Washington, we can identify the States competing most with Virginia for these markets. During July, the month of heaviest movement from Virginia, about 42 percent of the total carlot unloads of potatoes in the four market cities were from Virginia and 24 percent from California (appendix table 1). The bulk of the remaining carlot unloads were from North Carolina, Delaware, and New Jersey.

Also, potatoes are often produced in excess of retail needs. Marketing of these excess potatoes exerts a depressing influence upon retail prices and often results in unsatisfactory prices to growers.

Prices received by Virginia growers from 1940-1959 averaged slightly above those received by growers in the four major competing States and considerably above the average U.S. grower price (appendix table 2). Since 1959, however, Virginia growers have averaged over $0.10 per hundredweight below prices received by growers in the major competitive States. With production averaging around 4 million hundredweight, this means that Virginia growers received about $400,000 less than growers in competitive States for an equal volume of potatoes.

The second factor contributing to marketing problems in Virginia, especially on the Eastern Shore, is a lack of organized marketing at the grower and shipper level. In marketing potatoes, it is a fairly common practice for a Virginia grower to individually sell all or part of his own crop and often that of a neighbor. While this practice has been followed for some time, it gained momentum immediately after World War II. Improvements in roads and truck transportation, and growth in size of production units accelerated local marketing. Many growers and shippers believe this type of decentralized marketing in Virginia frequently results in unstable and inequitable prices at both the shipping point and terminal market.

Virginia potato growers, like those in other areas have made some adjustments to the changing marketing situation. There is a question, however, whether they are doing so fast enough to maintain their competitive position. Virginia growers need to offer buyers a desired volume of potatoes and perform marketing services equal to or better than their competitors. By acting as a group, growers may coordinate their marketing activities, and enhance their competitive position.

Objectives and Method of Study

This report provides information on major trends and developments in the potato industry and on buyers' preferences and procurement practices. Specifically, the report: (1) Briefly reviews developments in production, utilization, and marketing and their effect on Virginia's competitive position; (2) identifies the characteristics of new potatoes, shipping point services, and sources of supply that buyers prefer; (3) tabulates buyer's opinions of the competitive position of the Virginia potato industry with respect to these factors; and (4) discusses ways buyers believe growers and shippers can improve their marketing practices.

Contracts, marketing agreements and orders, and cooperative approaches, including joint sales arrangements, are discussed in the last section of the report. These, too, are effective methods of promoting more orderly marketing.

In setting goals for this study, we decided to obtain information on procurement practices and preferences from three important types of buyers of Virginia potatoes--retail chains, chippers, and itinerants. (Itinerants are nonresident seasonal buyers who move from one production area to another as the harvesting season progresses.) The

following guidelines were established to limit the scope of the study and set sampling procedure.

1. Only buyers directly responsible for procuring new white potatoes were interviewed.

2. Contacts were limited to:

a. Chainstore organizations of 11 or more stores headquartered in the metropolitan areas of New York, Philadelphia, Baltimore, and Washington;

b. Potato chippers with plants in the Middle Atlantic States; and

c. Itinerant buyers active on the Eastern Shore of Virginia.

During July and August 1962, we interviewed buyers concerning their preferences and practices. A total of 37 buyers, representing 9 chippers, 9 itinerants, and 19 chainstore organizations were interviewed. The chainstore buyers were located in four market cities (New York, Philadelphia, Baltimore, and Washington) and represented retail stores ranging in size from large national chains to smaller regional and local chains. Information obtained was classified by type of buyer to show differences in their preferences and practices. Data obtained from the chainstore buyers also were classified by market city.

Chainstore buyers are referred to throughout this report as: (1) Corporate chain buyers--representatives of corporate chain retailing organizations which operate under centralized management and control; (2) cooperative chain buyers--representatives of wholesaler operations owned by member retailers; and (3) voluntary chain buyers representing retailers who operate under a common name and belong to voluntary merchandising groups sponsored by independent wholesalers. Two wholesalers, included in the voluntary chain category, actually purchased potatoes for corporate chains as well as for associated independent retailers.

Information on changes and trends in the potato industry was developed from secondary sources.

Trends in the Potato Industry

To provide a better understanding of the present industry situation and of the factors influencing the competitive status of the Virginia industry, we will present first a brief review of developments and trends in production, utilization, and marketing of potatoes. Only major trends will be discussed.

Production

Production of white potatoes, commonly referred to as Irish potatoes, has undergone many changes in the past two decades. Since World War II there have been many developments and improvements in chemicals, varieties, machinery and equipment. These, along with scientific and technological advancements, have been factors in increasing yield per acre. At the same time there has been a reduction in total acreage and shifts to fewer but larger farms in more specialized producing areas.

Trends in Acreage, Yield, and Production

The acreage of potatoes harvested annually in the United States declined from an average

of 2.8 million acres a year in the early forties to around 1.4 million acres a year in 1951-62 (appendix table 3). Yield per acre, in contrast, more than doubled during this period, increasing from around 80 hundredweight an acre in the war years to an average of almost 190 hundredweight annually for 1958-62. This remarkable increase offset the decline in acreage harvested.

The average volume of potatoes produced annually increased irregularly from 230 million hundredweight in 1940-44 to 280 million in 1958-62.

In Virginia, trends in acreage harvested and yield per acre have followed the production pattern of the United States. Total acreage harvested declined almost 60 percent--from an average of 74,000 acres in 1940-44 to around 30,000 acres per year for the 1958-62 period (appendix table 3). Yield per acre in Virginia, while lower than the average for the United States, increased from an average of about 66 hundredweight per year in 1940-44 to around 130 hundredweight per year for 1958-62. Annual production decreased from around 5 million hundredweight in 1940-44 to an average of 3.5 million hundredweight in 1952-62. Virginia production represents on the average about 27 percent of the annual early summer potato crop. Early summer potatoes account for approximately 6 percent of total annual potato production.

Concentration into Specialized Areas

The trend toward increased production has been accompanied by shifts to more specialized growing areas. From 1940 to 1960, the major change in potato acreage occurred in the Western States. In 1940, these States accounted for 14 percent of the total acreage and produced 24 percent of the total crop (appendix table 4). By 1960, they had almost 36 percent of the acreage harvested and 42 percent of production. The greatest decline in both acreage and production was in the North Central States, followed by the South Central and South Atlantic States. The relative position of the North Atlantic States changed little between 1940 and 1960.

Two-row potato diggers such as this are commonly used to harvest Virginia potatoes.

Specialization within regions is shown by the increasing proportion of the crop being produced in relatively few States. In 1940, the 10 leading producing States accounted for 56 percent of the harvested acreage and 61 percent of total production (appendix table 5). Twenty years later, in 1960, the 10 leading producing States reported 69 percent of the harvested acreage and 75 percent of the total crop. Acreage increased only in the major producing States of Idaho and California; remained about the same or decreased considerably in the other major producing States.

Increasing Size of Enterprise

The trend toward concentration of production is further illustrated by a decline in

number but increase in size of farms producing potatoes. Data from the Bureau of the Census show that the number of farms reporting producing potatoes decreased from around 1.6 million in 1949 to approximately 685,000 in 1959 (appendix table 6).

Farms with less than 50 acres of potatoes declined by approximately 966,000, or 59 percent, during the 10-year period. Farms with 50 or more acres increased by about 28 percent and the proportion of acreage harvested and production represented by this group also increased considerably.

The movement of production onto fewer but larger farms in Virginia has followed the United States pattern (appendix table 6). Farms having under 50 acres decreased by about 44 percent--from 84,361 in 1949 to 47,052 in 1959. Farms with 50 or more acres increased by about 65 percent. In 1959, this group represented only 0.3 percent of the total number of farms but accounted for approximately 65 percent both of acreage and of quantity harvested.

Most of the farms producing 50 or more acres of potatoes were in Northampton and Accomack counties. These two counties produced 64 percent of the total Virginia crop in 1949; by 1959 they accounted for 89 percent.

Production of potatoes, in general, has shifted to areas having specific advantages. Climatic conditions, soil texture, fertility, irrigation, and suitability for larger scale enterprises have influenced the movement.

While potatoes are adaptable to a wide variety of soils and can be produced in many areas, they are perishable and relatively bulky. This results in high transportation costs as compared to their value and until fairly recent years, was a deterrent to the development of specialized producing areas. It also helps explain why production moved with the population before transportation methods improved.

As processing has increased and transportation improved, production has continually moved away from population centers to more specialized areas; that is, away from areas having predominately small enterprises with low yields to those more favorable for larger enterprises and higher yields.

Utilization and Consumption

Potato use, like acreage and yield, has changed markedly in the past two decades. There has been a decrease in the proportion of total crop used on farms, and an increase in the proportion sold for processing (appendix table 7).

Changes in Use Pattern

Seed and household uses on farms accounted for approximately 23 percent of the 1940 potato crop as compared to about 5 percent of recent crops. This reflects the trends toward greater concentration of production into specialized areas and on larger producing units, and the resulting decline in number of farms producing potatoes, particularly those growing them only for home use.

With producers utilizing less of the crop for seed and household purposes, a greater proportion is available for sale. The proportion of the total crop sold increased from 67 percent in 1940 to around 88 percent for 1958-62. The major portion of the quantity sold from farms is for food in the fresh form. In 1940, it was estimated that about 98 percent of the potatoes utilized for food were in the fresh form and only 2 percent were processed. By 1958, processed potatoes accounted for 34 million hundredweight or 19 percent of the crop sold for food use. Five years later in 1962, the volume of potatoes processed amounted to about 54.5 million hundredweight. This was 20 million hundredweight above the 1958 level and represented about 26 percent of the volume used for food.

Although there are reported to be over 30 different types of processed potato products, the main categories are chips, frozen french fries, and dehydrated potatoes. Of the potatoes processed into food products in 1962, 44 percent were chips and shoestrings; 29 percent, frozen french fries; 17 percent, dehydrated; and 10 percent, canned and other frozen products.

Even though a larger proportion of the potatoes are processed into chips, frozen and dehydrated products have made the most significant gains since 1958. The volume dehydrated and made into frozen french fries and other frozen products almost doubled from 1958 to 1962. The volume processed into chips in 1962 was about 40 percent above the 1958 level.

Per Capita Consumption

Per capita consumption of potatoes in the United States declined irregularly from the early part of this century until 1950 (appendix table 8). In 1910 consumption averaged 198 pounds per person; by 1950 it had dropped to 106 pounds. Since 1950, per capita consumption has remained fairly stable.

Many reasons are advanced for the decline in per capita consumption. Among these are a decrease in the proportion of the working force doing heavy manual labor, people becoming more conscious of diet, and a shift to a wider variety of foods. Increased urbanization, shorter workweek, and keener competition from other food items may also be factors.

Similarly, many explanations are advanced as to why the decline in per capita consumption of potatoes has halted. These include improvements in quality, type of packaging, promotion, and merchandising methods. Development of a number of new processed potato products is perhaps the major reason why consumption on a per person basis has leveled off.

The moderate variations in per capita consumption in recent years indicate that consumers tend to purchase only a given quantity of potatoes. This depends to some extent upon retail price. However, a study of consumer preferences showed that few homemakers would alter their potato purchases because of a moderate price change so long as the quality was good.[2] When an appreciable change in price causes a relatively small change in quantity purchased, the demand is considered inelastic.

With such an inelastic demand for potatoes, a quantity appreciably over that normally marketed may be moved through retail channels only at severely reduced prices. Conversely, a quantity smaller than that normally marketed through retail channels results in a proportionally greater price change. This means that a 10-percent change in the retail price would not reflect the same proportionate change in total quantity purchased. In recent years, economists have observed that a 5-percent change in retail prices of potatoes resulted in about a 1-percent change in quantity consumed.

The relatively stable per capita consumption of potatoes in recent years indicates that any substantial increase in the total quantity used for food will depend primarily upon population growth. Moreover, prospects of continued increase in consumer income and less emphasis on low-priced foods, coupled with changing dietary patterns, mean that possibilities for maintaining demand at or above the present level may become more dependent upon new or improved processed potato products.

Retail Marketing

Changes taking place in the marketing structure at the retail level in recent years

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[2] Bureau of Agricultural Economics, Potato Preferences Among Household Consumers, U.S. Dept. Agr., Misc. Pub. 667, 119 p., 1948.

have had and continue to have a profound effect upon the potato industry. Retail organizations have integrated and expanded their operations both vertically and horizontally to improve their position in the food industry and to better meet the needs of mass merchandising. Concurrent with these changes have been increased demands for larger and more dependable supplies.

Changes in Marketing Structure

The small independent family grocery, once the predominant type of retail food outlet, has declined in importance. Larger retail stores, primarily supermarkets, have increased their proportion of grocery sales over the years.

In 1962, total food sales reached $56.2 billion--more than double the 1950 mark of $27 billion. In this period, the total number of grocery stores declined about 45 percent--from about 430,000 in 1950 to 236,000 in 1962. Of these 236,000 grocery stores, approximately 27,000 were supermarkets having annual sales of $500,000 or more. These large retail units accounted for 68 percent of total grocery sales in 1962.

The trend toward larger and fewer foodstores is accompanied by increasing concentration of retail food-distributing firms. Many independent foodstore operators have formed cooperatives to operate warehouses on a mutual basis or have joined voluntary groups sponsored by wholesalers. In either case, their subsequent operations are very similar to those of corporate chains except that individual ownership and operation of the retail outlets is retained. Affiliated independents have thus increased their buying efficiency to the point where they can compete

The small, independent family grocery store, once a familiar part of the American scene, is giving way to the supermarket. Buyers for these large retail units require large quantities of uniform quality potatoes.

effectively with large corporate chain organizations. In 1962, cooperative and voluntary chains represented 49 percent of total foodstore sales.

Corporate chainstore companies having 11 or more units accounted for 41 percent of total grocery sales in 1962. While industry estimates indicate that corporate chains have increased their proportionate share of the market only slightly during the past decade, there has been a constant process of absorption of smaller chains by larger. Acquisitions and mergers have reduced the number of competitors and at the same time have tended to increase the economic power of the remaining chain organizations.

Explanations for Changes

Although several explanations are given for the rapid development of larger retail organizations, the desire to increase efficiency and maximize profits through sales expansion and cost reduction stands out. In this competitive drive, marketing organizations have brought more automation into their operations; brought production and marketing functions together under unified management and control; and expanded as well as coordinated certain operations.

Through coordinated buying functions, many retail organizations have bypassed terminal markets and are obtaining their potatoes directly from producing areas. Other retail organizations, such as voluntary and cooperative groups, are affiliated with wholesalers who can supply them a sufficient quantity of potatoes meeting their specifications.

Implications to the Virginia Industry

Developments occurring in the production, utilization, and marketing of potatoes have had an important effect upon Virginia growers as well as those in other areas. This is evidenced by the continuing decline in the number of farms producing potatoes, more commercial utilization of the crop, and increasing demands of retail chain organizations for larger supplies of uniform quality.

The trend toward concentration of production has been accompanied by a sharp reduction in acreage and a rapid increase in yields. Marginal producers, particularly those with small acreage or those growing potatoes as a sideline enterprise, have been forced out of production by increased competition or have turned to more attractive enterprises. Specialization increases the requirements for management skills and investment and operating capital.

Concentration of productive acreage into the hands of larger, commercial growers is expected to continue. Yield per acre is likely to continue to increase, but may be at a much slower rate. Even so, year-to-year variations, perhaps not so pronounced as in the past, are expected. These variations will arise primarily from changes in acreages and yields, which are dependent upon production decisions of growers and upon weather conditions.

Fluctuations in grower prices and especially the low level of prices received in the past few years reflect variations in production and the general tendency of the industry to produce supplies in excess of market requirements. With an inelastic demand, marketing of excess supplies tends to depress retail prices. Because marketing and distribution costs change little over a short period of time, changes in retail prices lead to even greater changes in grower prices. Thus, potato industry members can expect unsatisfactory prices and incomes if production exceeds retail market requirements.

In addition to facing the industrywide problem of sharply fluctuating prices and incomes, the Virginia industry, in recent

years, has been confronted with an internal problem generated by many growers individually marketing their own potato crops. With this type of decentralized marketing prevailing, growers and shippers are finding it increasingly difficult to offer large-scale buyers sufficient quantities of consistently uniform potatoes. Consequently, to move their crop, growers acting individually often accept prices lower than justified by demand and supply conditions.

The trend toward fewer but larger retail foodstores indicates that quality, quantity, and service considerations are likely to become more important in attracting potato buyers. Growers must produce the types and qualities of potatoes large-volume buyers require and shippers must provide desired quantities and marketing services if they are to attract these buyers. Since growers and shippers in highly specialized areas are in a better position to meet these requirements, the Virginia industry will likely find competition increasing for the shrinking number of sales outlets. Members of the Virginia industry will need better cooperation and closer coordination of marketing activities if they are to compete successfully with growers in other areas.

Buyers' Preferences

The preceding section highlighted major developments taking place in the production, utilization, and marketing of potatoes. This section provides information on the preferences expressed by the 37 buyers interviewed.

Buyers' preferences with regard to potato characteristics, preparation for market, and containers are reported by type of buyer. The data have also been classified by market city (See appendix tables 10 - 16).

Preferred Potato Characteristics

Buyers were asked to state what grade and size potatoes best suited their needs and also what types and varieties they preferred.

Grade

Potato grades include U.S. Fancy, U.S. No. 1, U.S. Commercial, and U.S. No. 2. Requirements for each grade with respect to size, tolerances for defects, and other characteristics are included in the U.S. Standards for Potatoes, published by Agricultural Marketing Service, U.S. Department of Agriculture.

Of the 37 buyers interviewed, 35 preferred U.S. No. 1 grade potatoes. However, 4 corporate and 1 voluntary chain buyer considered the tolerance specifications for U.S. No. 1's too broad. They preferred potatoes well within the tolerance limits of that grade. This is sometimes referred to by members of the trade as "Top of U.S. No. 1."

One corporate buyer wanted U.S. Fancy grade potatoes. Only one respondent, a chipper, expressed preference for the U.S. Commercial grade.

Size

Buyers expressed a wider variety of preferences for potato sizes than for grades.

Potatoes with a minimum 2-inch diameter were the most popular first choice (table 1). Twelve buyers, including 6 itinerants and 1 or more of each of the other types preferred this size. Chippers, as a group, apparently were willing to accept a wider range of sizes than were the other buyers. Five of the 9 chippers indicated that potatoes ranging from 1-7/8 to 4 inches would meet their requirements.

Chainstore buyers as a rule did not want potatoes exceeding 3-1/2 inches in diameter.

One corporate chain buyer and two itinerants preferred U.S. No. 1, size A potatoes. To meet this classification, potatoes must be at least 1-7/8 inches in diameter and 60 percent or more must be 2-1/4 inches or larger.

The remaining chain buyers preferred potatoes in a weight range of 7 to 12 or 7 to 14 ounces, a 2-1/4-inch minimum size or in a 2-1/2- to 3-inch size range. Of the 2 chippers with "other" size preferences, 1 wanted 1-7/8-inch minimum size; and the other, 4-inch maximum.

Type

White potatoes produced in the United States are of the round or intermediate type and the long white type. Irish Cobbler, Katahdin, Pungo, and Sebago varieties are among the principal round or intermediate types. The round white is in the major type produced east of the Mississippi. Long white potatoes, such as the Early Gem and White Rose varieties, are more commonly produced in the Western States.

Thirty-two of the 37 buyers preferred round whites over long whites. Only 4 corporate and 1 voluntary chain buyer preferred long whites.

Our survey was conducted during July and August when long white potatoes are usually available only in limited quantities. Thus, it may be that the buyers' stated preferences were conditioned by the availability of supply at the time of the survey. In markets where both round and long whites were more readily available, corporate chain buyers expressed about equal preference.

Table 1.--Buyers' preferences for potato sizes, 1962

Type of buyer	Number of buyers preferring potato sizes of--							Total number of buyers
	Minimum diameter		Minimum and maximum diameter			U.S. No. 1 size A	Other	
	2 in.	2-1/2 in.	1-7/8 - 4 in.	2-1/4 - 3-1/2 in.	2-1/2 - 3-1/2 in.			
	Buyers							
Chain								
Corporate	2	1	-	1	2	1	2	9
Cooperative	1	2	-	1	2	-	-	6
Voluntary	1	-	-	1	-	-	2	4
Total, chain	4	3	-	3	4	1	4	19
Chipper	2	-	5	-	-	-	2	9
Itinerant	6	-	-	1	-	2	-	9
Total, all buyers	12	3	5	4	4	3	6	37

All chippers and itinerants preferred round potatoes because certain varieties possess characteristics which make them more suitable for processing into chips. Also, more round white potatoes are produced close to the Eastern metropolitan areas where potato chips are manufactured and consumed.

Variety

Potatoes grown in Virginia are predominately Pungo and Irish Cobbler with Katahdin and other varieties occupying a minor place. At one time, Irish Cobbler was the most widely grown. In recent years, however, popularity of the Pungo variety has increased until it is now the dominant one produced.

There are numerous reasons for the increased popularity of the Pungo variety. Its adaptability to Virginia soils and climate, along with its enviable reputation as being widely acceptable for both table and process use, apparently influenced greatly the shift to this variety.

Buyers primarily preferred Pungo, Katahdin, and Sebago potatoes, along with Irish Cobbler, Chippewa, Kennebac, and California White Rose (table 2). Thirty-two of the 35 buyers responding indicated a first and second preference. About one-third of these buyers desired three varieties and a few indicated a fourth preference. Because of the number of preferences given, they were weighted and ranked according to choice by type of buyer.

The Pungo variety ranked first and Katahdin as the second preference of cooperative chain and itinerant buyers. Voluntary chain buyers selected Katahdin, along with other varieties, as their first preference. Pungo was the second choice of this group of buyers. Chippers preferred Sebago with Pungo second. Other varieties, primarily California White Rose, ranked first and Sebago second with the corporate chain buyers.

Preparation Desired

Buyers were next asked how they wanted potatoes prepared for market. Their responses to questions on washing and precooling are reported here.

Table 2.--Buyers' preferences for potato varieties, weighted and ranked by type of buyer, 1962

Type of buyer	Buyers' preferences for potato varieties			
	Katahdin	Pungo	Sebago	Other[1]
	Rank			
Chain				
Corporate	3	4	2	1
Cooperative	2	1	3	4
Voluntary	1	2	-	1
Rank, all chains	1	2	4	3
Chipper	3	2	1	4
Itinerant	2	1	4	3
Rank, all buyers[2]	2	1	4	3

[1]Irish Cobbler, Chippewa, Kennebac, and California White Rose.
[2]Buyers responding included 9 corporate, 5 cooperative, and 4 voluntary chain buyers; 8 chippers, and 9 itinerants.

Washing

The major purpose of washing potatoes in preparation for market is to remove dirt and improve their appearance. Potatoes are washed by several methods, ranging from soaking to the common pressure spray-type washer. Likewise, there are several drying methods, such as heat and sponge-rubber rollers.

Washing of potatoes has been practiced to some extent in Virginia and other potato-growing areas for many years. With the exception of corporate chain buyers, however, the majority of buyers preferred unwashed potatoes (table 3). Seven of the 9 corporate buyers wanted washed potatoes. One itinerant wanted an equal proportion of washed and unwashed potatoes.

Of the buyers preferring washed potatoes, seven wanted them washed only when muddy, dirty, or when not grown in sandy soil. Five of the buyers preferring unwashed potatoes wanted them clean but by means other than washing.

Precooling

Precooling potatoes, like washing, has been practiced in some areas for a number of years, mostly in the Southern and Southeastern States where early potatoes are grown and in areas where more perishable varieties are produced. Precooling involves dissipating field heat from potatoes to bring temperature to optimum holding point. It is usually accomplished by forced-air cooling, which involves using fans to force air over and through potatoes in ventilated bins or by hydrocooling.

Buyer reaction to precooled potatoes is reported in table 3. Over one-half of the chain-store buyers preferred precooled potatoes, with corporate chains showing particular interest. One of these buyers and one cooperative buyer wanted potatoes cooled while enroute to market in refrigerated trucks.

All chippers preferred uncooled potatoes. Only one-third of the itinerant buyers expressed preference for precooled potatoes, two of the buyers wanting them precooled only when washed.

Table 3.--Buyers' preferences as to washing and cooling potatoes, 1962

Type of buyer	Number of buyers preferring potatoes				Total number of buyers
	Washed	Unwashed	Precooled	Uncooled	
	Number				
Chain					
Corporate	7	2	7	1	19[1]
Cooperative	2	4	3	3	6
Voluntary	1	3	1	3	4
Total, chain	10	9	11	7	19
Chipper	3	6	-	8	19[1]
Itinerant	4	5	3	6	9
Total, all buyers	17	20	14	21	37

[1] One corporate chain buyer and one chipper did not respond to question concerning cooling preference.

Container Preferences

Types and sizes of containers used nationally for packaging and shipping potatoes vary widely. The 5- and 10-pound polyethylene film bag, 5- and 10-pound polyethylene mesh bag, and 10-pound open-window paper bag are most commonly used for consumer-sized packs. The 25-pound paper or polyethylene bag and the 50-pound paper bag are commonly used for larger consumer packs. Also, 50-pound paper and 100-pound burlap bags are widely used as shipping containers. The Virginia potato industry packs potatoes in a fairly wide variety of container types and sizes.

Container Type

Container type preferences of the 37 buyers contacted in this study are shown in table 4. All buyers except chippers preferred more than one type. Chippers wanted burlap bags exclusively. Itinerants and all but one of the chainstore buyers desired burlap, paper, or a combination of the two. One corporate chain buyer wanted polyethylene bags and corrugated paper cartons.

Most buyers preferring both burlap and paper containers indicated they wanted paper for the 5- to 50-pound sizes and burlap for the 100-pound unit. Those desiring only paper bags wanted the open window type. Two buyers wanted master containers for 10-pound bags.

Container Size

Almost two-thirds of the buyers indicated they wanted containers of more than one size. Their preferences, therefore, were weighted and ranked according to choice by type of buyer.

Only potato chippers preferred a single size (table 5). They desired all 100-pound containers.

All chainstore and itinerant buyers rated the 10-pound size as their first choice and either the 50- or 100-pound second. The 25- and 5-pound containers ranked fourth or fifth with these buyers. Most buyers preferring more than one container size wanted the 10-pound size for consumer packs and 50- and 100-pound sizes for shipping units.

Table 4.--Buyers' preferences for types of potato containers, 1962

Type of buyer	Number of buyers preferring				Total number of buyers
	Burlap bags	Paper bags	Both burlap and paper bags	Other [1]	
	Number				
Chain					
Corporate	2	4	2	1	9
Cooperative	1	2	3	-	6
Voluntary	1	1	2	-	4
Total chains	4	7	7	1	19
Chipper	9	-	-	-	9
Itinerant	2	3	4	-	9
Total all buyers	15	10	11	1	37

[1] Polyethylene bags and corrugated cartons.

Table 5.--Buyers' preferences for potato container sizes, weighted and ranked by type of buyer, 1962

Type of buyer	Buyers' preferences for container sizes				
	5 lb.	10 lb.	25 lb.	50 lb.	100 lb.
	Rank				
Chain					
Corporate	3	1	5	2	4
Cooperative	-	1	-	2	3
Voluntary	4	1	3	-	2
Rank, all chains	4	1	5	2	3
Chipper	-	-	-	-	1
Itinerant	4	1	3	5	2
Rank, all buyers[1]	5	2	4	3	1

[1]Includes 9 corporate, 6 cooperative, 4 voluntary, 9 chipper, and 9 itinerant buyers.

Implications to the Virginia Industry

Buyers purchase potatoes to meet specific needs and their requirements vary widely. This means that potatoes meeting the requirements of one type of buyer do not necessarily meet those of another. Failure of growers and shippers to recognize this may limit the volume of potatoes they can sell.

Differences are most apparent when comparing requirements of chainstores buying for fresh use with those of chippers who purchase potatoes for processing. In general, fresh-use potatoes must meet more rigid size, shape, and other external specifications. They must be free from external defects and of a size and shape to appeal to consumers. This helps explain why chainstore buyers desire potatoes meeting more stringent external specifications than do chippers. It also explains why a higher proportion of fresh-use buyers preferred shipping-point services such as washing and precooling so the potatoes would be ready for retail sale.

Size, shape, and appearance factors are somewhat less important to potato chippers. Their primary requirements are for varieties having the internal characteristics which make the potatoes suitable for processing into good quality chips. Potatoes of odd sizes and with minor defects can be used for chips so long as they meet internal quality specifications. Thus growers and shippers have an outlet for sound potatoes not meeting external specifications for fresh markets.

Potato growers and shippers can gain a better insight into the specific needs of the different types of buyers by studying the preferences they expressed. To meet these buyers' needs adequately would require: (1) A production program to provide potatoes possessing the characteristics desired by each type of buyer; and (2) a marketing program in which shippers render the services required.

Buyers' Opinions of the Virginia Potato Industry

Buyers were asked to compare the Virginia potato industry with their other early-summer supply sources with respect to specific supply, preparation, and marketing factors. While their evaluations are important, perhaps it is even more important to know why some buyers considered Virginia not equal to other supply sources in certain respects. Accordingly, reasons as well as ratings are discussed.

Supply and Preparation Factors

We requested buyers to evaluate the Virginia industry on varieties of potatoes available, adequacy of supply, and grading and sizing practices. They also were asked their opinions of the size and type of containers offered.

Varieties Available

The majority of all buyers responding, except chippers, rated Virginia equal to other supply sources with respect to varieties available (table 6). One voluntary chain buyer regarded the industry better than other suppliers on this factor, but 6 chippers, 5 chain-store, and 2 itinerant buyers rated Virginia below other sources. The reason most frequently given by buyers for tne poorer rating was that Virginia had available only a limited number of desirable varieties. Chippers noted they needed potatoes that consistently produce good color and quality chips.

If growers are to adequately satisfy buyers' needs, they should continue to search for new varieties to supplement the Pungo and Irish Cobbler.

Adequacy of Supply

Potato harvesting usually begins in Virginia around the middle of June and extends into August. Although weather conditions and other factors may cause some deviation, harvesting usually reaches a peak during July. Since there is no commercial storage of potatoes

Table 6.--Buyers' ratings of Virginia potato industry as better than, equal to, or poorer than other supply sources with respect to varieties available, by type of buyer, 1962

Type of buyer	Buyers' ratings			Total number of buyers
	Better	Equal	Poorer	
	Buyers			
Chain				
Corporate	-	6	3	9
Cooperative	-	4	2	6
Voluntary	1	3	-	4
Total, chain	1	13	5	19
Chippers	-	2	6	8
Itinerant	-	7	2	9
Total, all buyers	1	22	13	36

in Virginia, the supply available each day is determined by the quantity harvested.

Of the 37 buyers responding, 32 rated Virginia equal to other supply sources with respect to adequacy of supply. Two chippers regarded the industry as better in this respect. One itinerant and two chainstore buyers (one corporate and one voluntary) rated Virginia below other supply sources because of a lack of available supplies when weather conditions prevent harvesting. These buyers also said that fragmentary selling practices of many growers impeded an orderly flow of potatoes in Virginia.

Grading and Sizing Practices

Potatoes are ordinarily graded and sized at packinghouses, along with washing, drying, precooling, and packaging.

In Virginia, grading machines with chain belt conveyers having different screen sizers are used to sort potatoes and remove those of undesirable size. Then they are carried to sorting tables where damaged, misshapen, diseased, and otherwise defective potatoes are removed by hand.

The majority of the cooperative chain buyers considered grading practices of the Virginia industry not equal to those of other supply sources (table 7). However, all voluntary, a majority of corporate chain buyers, and all but one chipper indicated that grading practices of the Virginia industry were equal to those of suppliers in other areas.

Reasons given by buyers who rated Virginia industry grading practices lower than other sources centered primarily around the maximum tolerance limits permitted for each grade. Buyers mentioned that Virginia industry members are less strict than those in other areas about removing immature and dirty potatoes and those with grade defects and feathery characteristics.

Grading and sizing operations at a packing house.

A higher percentage of the buyers rated the Virginia industry lowest on sizing practices than on any other factor. Twelve of the 19 chainstore and 3 of the 9 itinerant buyers said potato sizing practices in Virginia compared unfavorably with those of other supply sources (table 7). The eight chippers who responded to this question all gave Virginia a rating of "equal" in this respect.

Buyers who rated the Virginia industry below other sources on sizing practices gave a variety of reasons. Most frequently mentioned was including too many small and large potatoes in the same pack. Buyers also stated that there was a lack of uniformity in sizing practices. The minimum-diameter size was often too small, and there was insufficient separation of baker or large-size from medium and small potatoes.

Responses indicated that Virginia growers and shippers may not be providing buyers with potatoes meeting their preferred size requirements. Some sales may be lost because of this.

Containers Offered

Buyers were asked to give separate ratings on the sizes and types of containers offered by the Virginia industry. However, the ratings given were identical. Thirty-four of the 36 buyers responding considered the sizes and types of containers offered by Virginia equal to those from other supply sources.

One corporate and one cooperative chainstore buyer indicated that 5- and 10-pound packs and corrugated paper cartons were more readily available from other supply sources than from Virginia. They also indicated a dislike for burlap bags.

Marketing Factors

Buyers were asked their opinions of various factors directly and indirectly related to marketing and delivery. These included time required for delivery, how well the Virginia

Table 7.--Buyers' ratings of the Virginia potato industry's grading and sizing practices as better than, equal to, or poorer than those of other supply sources, by type of buyer, 1962

Type of buyer	Buyers' ratings of grading practices			Buyers' ratings of sizing practices			Number of buyers responding
	Better	Equal	Poorer	Better	Equal	Poorer	
				Buyers			
Chain							
Corporate.....	-	5	4	-	3	6	9
Cooperative	-	1	5	-	1	5	6
Voluntary.....	-	4	-	-	3	1	4
Total, chain ...	0	10	9	0	7	12	19
Chipper	-	8	1	-	8	-	[1]9
Itinerant	4	4	1	-	6	3	9
Total all buyers.....	4	22	11	0	21	15	[1]37

[1]Only 8 of the 9 chippers rated Virginia industry on sizing; total respondents on sizing, 36.

industry met specific commitments, and condition of potatoes when received.

The last question asked concerned the Virginia industry's reputation for quality.

Time Required To Make Delivery

In the last few years, trucks have been used to transport practically all Virginia potatoes to market. Because of the relatively short hauls, usually only overnight, the Virginia industry enjoys a comparative advantage over more distant producing areas with respect to transportation costs and delivery time.

Buyers rated the Virginia industry higher on time required to make delivery than on any other factor. Eight of the 37 buyers regarded the Virginia industry better than other supply sources on this factor and 28 rated it equal (table 8).

One corporate chain buyer said Virginia potatoes are kept on trucks too long before being dispatched to market.

Meeting Commitments

Commitments to buyers may be either oral or written. They may involve an agreement to provide or deliver to the buyer a stipulated quantity of potatoes meeting certain specifications.

On meeting commitments, 34 of 37 buyers regarded the Virginia industry equal to other supply sources and one itinerant buyer considered it better. One corporate and one voluntary chainstore buyer considered Virginia less than equal because, they said, some growers and shippers do not appear interested in satisfying buyers' specifications when new practices or procedures may be involved. Some buyers indicated that weather conditions often make it difficult for individuals within the industry to meet their commitments.

Condition of Product on Arrival

Potatoes are quite perishable and their arrival condition is largely dependent upon care taken in packing and loading; in controlling temperature and humidity, and preventing physical injury while enroute; and,

Table 8.--Buyers' ratings of the Virginia potato industry as better than, equal to, or poorer than other supply sources with respect to time required to make delivery, by type of buyer, 1962

Type of buyer	Buyers' ratings			Total number of buyers
	Better	Equal	Poorer	
			Buyers	
Chain				
Corporate	2	6	1	9
Cooperative	1	5	-	6
Voluntary	1	3	-	4
Total, chain	4	14	1	19
Chipper	2	7	-	9
Itinerant	2	7	-	9
Total, all buyers	8	28	1	37

finally, in unloading. Inherent qualities of the potatoes, their maturity and moisture content, and any injury before shipment also influence their arrival condition. Under normal shipping situations, potatoes moved from producing area to market by truck or rail should arrive in almost the same condition as existed when they were loaded.

The majority of all buyers responding considered the condition of potatoes arriving from Virginia as equal to that of potatoes from other supply sources (table 9). Three buyers regarded the Virginia industry better. Reasons advanced by five buyers for rating the Virginia industry less than equal included shipping immature, diseased, and insect-damaged potatoes, and those which were inclined to break down, especially when wet. Two buyers indicated that potatoes are kept on trucks too long before being dispatched to market.

Reputation for Quality

Reputation for quality is based on grade, handling, storage, cultural practices, and other factors which affect the quality of the product marketed. Rating reputation for quality is a judgment decision.

All chippers, all but two itinerants, and about one-half of the chainstore buyers rated the Virginia industry equal to other supply sources on reputation for quality (table 9). Of the other 12 buyers, 3 rated Virginia "better". The eight chainstore buyers and one itinerant who rated the industry lower on this factor said Virginia potatoes do not always maintain their quality. These buyers also indicated that immaturity, grade defects, disease, and insect damage affect the quality of Virginia potatoes.

Implications to the Virginia Industry

The majority of all types of buyers regarded the Virginia potato industry as equal to other supply sources with respect to each of the 10 factors considered (appendix table 9). Buyers rated Virginia lowest on sizing

Table 9.--Buyers' ratings of Virginia potato industry as better than, equal to, or poorer than other supply sources with respect to condition of product on arrival and reputation for quality, by type of buyer, 1962

Type of buyer	Buyers' ratings of condition of product on arrival				Buyers' ratings of reputation for quality			
	Better	Equal	Poorer	Total buyers	Better	Equal	Poorer	Total buyers
	Buyers							
Chain								
Corporate	1	4	3	8	-	4	4	8
Cooperative	-	5	-	5	1	2	3	6
Voluntary	-	3	1	4	1	2	1	4
Total, all chain	1	12	4	17	2	8	8	18
Chipper	-	8	-	8	-	7	-	7
Itinerant	2	6	1	9	1	7	1	9
Total, all buyers	3	26	5	34	3	22	9	34

practices, varieties available, grading practices, and reputation for quality. The Virginia industry rated highest on time required to make delivery.

As a group, the chainstore buyers gave the Virginia industry lower ratings on the 10 factors than chippers or itinerants did (table 10). Although corporate and cooperative chain buyers rated most factors differently, their overall percentage rating was the same. Slightly over one-fourth of these buyers, representing both large and small retail chainstores, gave Virginia a lower overall rating than other supply sources on the 10 factors.

A greater proportion of the chippers regarded Virginia as equal to other supply sources on the factors considered than did itinerants or chainstore buyers. More itinerants rated Virginia better than other supply sources than did the other buyers.

Buyers impressions of marketing practices and services of Virginia growers and shippers are important because they help identify what other people consider to be the weak and strong points of the industry's program. The buyers interviewed indicated that they believe Virginia industry members have not shown sufficient interest in providing potatoes and marketing services desired by buyers and that they do not follow closely a systematic, organized program for handling and marketing.

If Virginia growers and shippers are to strengthen their image and, at the same time, their competitive position, they must continue to improve their marketing operations, giving particular attention to practices rated unfavorably by buyers.

Table 10.--Percentage of buyers rating the Virginia potato industry better than, equal to, or poorer than other supply sources on the 10 factors considered, 1962

Type of buyer	Percentage of buyers rating Virginia industry, compared with other sources, as--			Total
	Better	Equal	Poorer	
		Percent		
Chain				
Corporate	4.0	68.0	28.0	100
Cooperative	4.0	68.0	28.0	100
Voluntary	8.0	80.0	12.0	100
All chains	4.0	71.0	25.0	100
Chipper	5.0	86.0	9.0	100
Itinerant	11.0	79.0	10.0	100
All buyers	6.0	76.0	18.0	100

Buyers' Procurement Practices

Buyers were asked what proportion of their new potatoes from Virginia and from other supply sources they usually obtained at shipping point or terminal market. Buyers who procured the bulk of their new potatoes from Virginia at the shipping point or terminal market were asked to explain their preferences.

Procurement of New Potatoes from Virginia

Twenty-eight of the 34 buyers procured over one-half of their new Virginia potatoes at the shipping point (table 11). Twenty-two of these 28 buyers procured all their potatoes at the shipping point. Chippers and itinerants relied exclusively upon shipping-point suppliers for their potatoes. Eight of the nine chippers procured the bulk of their potatoes from shipping-point brokers or agents. All itinerants procured most of their potatoes directly from growers and shippers at the shipping-point level.

Chainstore buyers procured new Virginia potatoes at both the shipping point and terminal market. However, most of these buyers procured over one-half of their potatoes at the shipping point. Four of the six chainstore buyers procuring potatoes at the terminal market reported they obtained 100 percent of their supplies from that source.

Reasons given by buyers for procuring all or the bulk of their new Virginia potatoes at the shipping point were associated with quality, supply, and cost considerations. By obtaining potatoes at the shipping point, buyers indicated they could exercise greater

Table 11.--Buyers' point of purchase of over one-half of their potato supplies, by supply area and type of buyer, 1962

Type of buyer and area	Buyers' point of purchase				Total number of buyers
	At shipping point from--		At terminal market from--		
	Growers and shippers	Brokers or agents	Wholesalers and handlers	Brokers or agents	
	Buyers				
Virginia					
Chain					
Corporate	4	1	3	-	8
Cooperative	-	3	-	2	5
Voluntary	1	1	-	1	3
Total, chain	5	5	3	3	16
Chipper	1	8	-	-	9
Itinerant	9	-	-	-	9
Total, all buyers	15	13	3	3	34
Other areas					
Chain					
Corporate	4	2	2	1	9
Cooperative	-	2	1	2	5
Voluntary	1	1	-	2	4
Total, chain	5	5	3	5	18
Chipper	2	7	-	-	9
Itinerant	7	-	-	-	7
Total, all buyers	14	12	3	5	34

control over time of harvest, grading, and packing, and thus could better control the quality of the potatoes purchased. They further stated that they could better fulfill their quantity requirements at shipping point because growers and shippers were in better position to provide them with more accurate information on local production and supply conditions. Some buyers mentioned that they saved time and money by buying direct.

Chainstore buyers who obtained the bulk of their new Virginia potatoes at the terminal market said that these suppliers could provide a continuous supply in small lots and desired consumer-size packs and could provide storage and other services.

Smaller retail organizations, in particular, preferred to use the services of brokers. They said brokers were in a better position to procure potatoes meeting desired specifications because of their contacts with suppliers in many producing areas. Some buyers who obtained the bulk of their potatoes at shipping point stated they bought additional quantities at the terminal market to fill in when short on supplies.

Procurement of New Potatoes from Other Areas

Buyers followed approximately the same practices in procuring potatoes from other supply areas as they followed in Virginia (table 11). Twenty-six buyers relied upon the shipping point for the bulk of their new potatoes; 19 of 26 purchased 100 percent of their potatoes from shipping-point sellers. Eight of the 18 chainstore buyers purchased the bulk of their new potatoes at the terminal market; 5 of the 8 obtained all of their potatoes from that source.

Implications to the Virginia Industry

Data on buyer procurement practices show that a high proportion of the buyers are bypassing terminal market suppliers and procuring all or the bulk of their potatoes at the shipping point. Many retail organizations are now performing the buying function previously performed by intermediary handlers.

With expectations for a continuing trend toward direct buying at the shipping point, growers and shippers are likely to find they will be dealing more and more with buyer representatives of large retailing firms. As mentioned previously, for Virginia suppliers to compete successfully they must offer potatoes and services equal to or better than those their competitors offer.

Virginia growers and shippers cannot satisfactorily do this when individually selling a small volume. They need to consolidate and coordinate their marketing activities.

Unless growers and shippers take the initiative in doing this, large retail chain and other volume users of potatoes may through necessity: (1) Enter into more contractual arrangements with growers to gain greater control over production and thus be assured of more desirable volume; or (2) establish facilities in potato-producing areas to perform their own marketing services.

In either event, control over marketing would pass more and more from grower and shipper to buyer.

Buyers' Suggestions for Better Industry Program

This part of the report presents changes noted by buyers in the past 5 years relating to quality of potatoes and to shipping-point market practices. It also includes their suggestions to Virginia growers and shippers and others for strengthening their industry programs.

The changes and suggestions are summarized in tables 12, 13, and 14. In each of these

tables, the total number of responses exceeds the number of buyers because some buyers gave more than one response.

Changes Noted Since 1958

Buyers reported they had noted changes in varieties of potatoes grown in Virginia in the past 5 years and in preparation and production practices. They also mentioned changes in marketing and packaging in Virginia and in other supply areas.

Relating to Potato Quality

The changes relating to the quality of Virginia potatoes most frequently noted by 18 buyers concerned varieties and additional services being performed at the shipping-point level. All buyers responding indicated that changes which had taken place in the past 5 years had improved the quality of Virginia potatoes (table 12).

Both chain and nonchain buyers said the change from Cobbler to Pungo had helped improve the quality of Virginia potatoes. Compared to Cobblers, Pungos are more suitable for chipping, maintain their condition better while in shipment, and have longer shelf-life. However, three chippers stated that Pungos are now failing to maintain their chipping quality and that, in recent years, their color and taste have been inferior compared with previous years' crops.

Other reasons buyers gave for improved quality of Virginia potatoes were better grading, sizing, and production practices, and an increased amount of precooling and brushing at the shipping point. They did not elaborate as to how these individual practices improved potato quality.

Of the 37 buyers interviewed, only 7 chain-store buyers reported observing any changes relating to the quality of potatoes in other supply areas. They mentioned: An increased effort to market more mature and uniform-quality potatoes; more rigid quality standards; keeping poorer quality off the market; more precooling; and some areas adopting State seal of quality programs. Most buyers indicated these changes in other supply areas, like the changes in Virginia, helped improve the quality of potatoes marketed.

Table 12.--Major changes which have helped improve the quality of Virginia potatoes since 1958, as reported by 18 buyers in 1962

Changes noted	Times mentioned by--			Total number of responses
	Chainstore buyers	Chippers	Itinerants	
Change in variety, primarily from Cobbler to Pungo..	9	4	3	16
Improved grading and sizing practices	3	1	-	4
More precooling.....	2	-	-	2
More brushing	2	-	-	2
Better production practices.....	1	-	1	2
Total	17	5	4	26

Tests such as this are used to determine chipping characteristics.

Relating to Shipping Point Marketing Practices

Twenty-six of the 37 buyers observed changes in marketing practices at the shipping-point level in Virginia since 1958 (table 13). The changes cited most frequently were an increase in the amount of washing and changes in packaging. Several buyers reported that more growers and shippers were washing potatoes to better meet the demand for clean potatoes. Buyers also indicated that, because of increased demand, many shipping-point suppliers were offering a wider variety of sizes and types of potato packs.

Two itinerant buyers noted there had been an increase in the number of dealers and seasonal agents in Virginia in the past 5 years. One said that growers were expressing more interest in meeting buyers' requirements. One chipper observed that more growers were selling their potatoes themselves.

Buyers reported observing a wider variety of changes relating to shipping-point marketing practices in other supply areas than in Virginia (table 13). Some of the changes observed by 24 buyers were similar to those mentioned for Virginia. Others were concerned with promotion, storage, specific sizing programs, and use of master containers for 5- and 10-pound packs.

Buyers noted that promotion-advertising practices, such as use of point-of-sale material, billboards, and State seal programs, along with other advertising media, had helped growers and shippers acquaint both buyers and consumers with potatoes.

Suppliers in many producing areas, in addition to using master containers to facilitate palletizing, offer mixed loads of potatoes in various sizes and types of consumer packs. Some buyers stated that certain shipping-point suppliers make special efforts to size potatoes to exact specifications, such as 2-1/2 to 3-1/2 inches. These special sizing practices are usually provided at no extra cost to the buyers.

Virginia growers and shippers might consider the feasibility of adopting some of the practices of their competitors in other areas.

Suggestions for Improving Industry Practices

All chain and all but three of the nonchain buyers interviewed suggested ways Virginia growers and shippers might improve their industry practices. One-half of the suggestions were directly related to marketing; the others were more closely associated with production practices and preparation for market (table 14).

The predominant suggestion relating to production practices was to develop and improve potato varieties. Four chippers and two itinerant buyers suggested the need for new varieties with better chipping qualities. Two chainstore buyers believed varieties needed improving for better shelf-life. One itinerant buyer suggested further reducing Cobbler acreage and increasing Pungo. Other suggestions included altering production practices so the primary goal would be better chip

Table 13.--Changes in shipping-point marketing practices in Virginia and other supply areas since 1958, as reported by potato buyers in 1962

Changes noted and area	Times mentioned by buyers			Total responses
	Chainstore	Chipper	Itinerant	
Virginia				
More washing	9	1	4	14
More packing in consumer-size bags	3	-	3	6
More 50-lb. containers available	2	-	-	2
More paper containers offered	2	-	-	2
More dealers and seasonal agents	-	-	2	2
More interest in meeting buyer demand	-	-	1	1
More direct selling by grower	-	1	-	1
Other supply areas				
More washing	3	-	3	6
More packing in consumer-size bags	3	-	1	4
More promotion - advertising	3	-	-	3
More specific sizes available and better sizing practices	3	-	-	3
More use of master containers and pallets	2	-	1	3
Better storage facilities to help stabilize market	-	-	3	3
Some use of point-of-sale material and State seal brands	2	-	-	2
More precooling and use of polyethylene bags	2	-	-	2
More growers selling direct and better informed on price and market conditions	1	1	-	2
More maturity of potatoes marketed	-	-	1	1

quality rather than high yield. One buyer recommended delaying harvest when potatoes are immature or when sunscald conditions prevail.

Only fresh-market buyers offered suggestions on how growers and shippers could better prepare potatoes for market. Foremost among the suggested improvements were more strict and uniform grading and sizing practices. Several buyers indicated growers and shippers should take into consideration that U.S. Grade Standards are broad and that potatoes meeting specifications for grades

Table 14.--Suggestions to Virginia potato growers and shippers, made by 34 buyers, 1962

Suggestions	Times mentioned by buyers			Total responses
	Chainstore	Chipper	Itinerant	
Production				
Develop new varieties	2	4	2	8
Let potatoes mature before harvesting	3	-	1	4
Strive for chip quality rather than high yield	-	2	-	2
Curtail harvesting under sunscald conditions	-	-	1	1
Reduce Cobbler and increase Pungo acreage	-	-	1	1
Total	5	6	5	16
Preparation for market				
Follow stricter grading and sizing practices	6	-	-	6
Use master containers for 10-pound bags	4	-	-	4
Perform more washing and precooling	2	-	-	2
Pack more mixed loads of 5-, 10-, 25-pound bags	2	-	-	2
Reduce field heat without causing potatoes to "sweat"	1	-	-	1
Total	15	0	0	15
Marketing				
Stabilize prices	4	-	4	8
Balance harvest with orders	4	-	3	7
Increase advertising and promotion	4	-	-	4
Keep poorer quality off market	3	-	1	4
Eliminate consignment sales	0	-	2	2
Have better communications within industry	1	-	1	2
Reduce time potatoes stay on trucks before moving to market	2	-	-	2
Encourage more cooperation at local level	-	-	2	2
Total	18	0	13	31
Total	38	6	18	62

within these standards often fail to meet buyers' particular needs.

In addition to improving sizing and grading practices, buyers suggested more washing, precooling, and reducing field heat without causing potatoes to transpire. Several buyers recommended that growers and shippers, when packing potatoes, should be prepared to provide more mixed loads of different sized bags and to use master containers for the 10-pound size. The suggestions offered by chainstore buyers underscore their concern for uniform potatoes of consistent quality.

Chainstore and itinerant buyers frequently mentioned the need to stablize prices and balance harvest with buyers' orders. Several buyers expressed concern over lack of uniformity of seller prices throughout the Virginia industry. Buyers also recommended better communications in the industry and more promotion and advertising to help growers stabilize prices and publicize their

product. These activities would help growers become more knowledgeable of prices and of the current market situation, as well as better acquaint the trade with their product. Two itinerant buyers felt there should be closer cooperation among industry members.

Buyers recommended that industry members discontinue marketing potatoes damaged by disease or insects and those of inferior quality. Some buyers also believed sales on consignment basis should be eliminated. Two chainstore buyers recommended that the time potatoes stay on loaded trucks before being moved to market be reduced and also that loaded trucks be kept out of sun.

The suggestions buyers offered for improving marketing practices in other supply areas were similar to those offered for Virginia growers and shippers. Most of the suggestions were related to potato quality. In particular, buyers felt that suppliers in other areas should eliminate marketing potatoes of inferior quality, especially selling off-quality potatoes to truckers.

Ways To Improve Marketing

The preceding sections suggest the need for Virginia potato growers and shippers to adjust, expand, or, in many instances, eliminate certain marketing practices to strengthen their competitive position. Such action is imperative if the industry's marketing program is to be structured to meet effectively the accelerating and changing needs of large-scale buyers. While several approaches may be used, Virginia growers and shippers should give careful consideration to marketing contracts, marketing agreements and orders, and to cooperative arrangements including marketing cooperatives and coordinated marketing.

The following brief discussion is intended to serve as point of reference in developing courses of action to alleviate present marketing problems of the Virginia potato industry.

Marketing and Production Contracts

A marketing contract is an agreement between the contractor and grower in which conditions affecting both parties are specified. Such contracts have been infrequently used in the Virginia potato industry. They are most frequently used in potato-producing States where more storage is performed.

In a marketing contract, the grower agrees to deliver all or a portion of his crop to the contractor on specified terms. The grower continues to make all production decisions and relinquishes only the selling function to the contractor.

If management decisions of production and financing are relinquished to the contractor, along with selling functions, the contract falls into the category of a production contract. This differs from a marketing contract in that it calls for more direct participation by the contractor. For example, the contractor may make decisions regarding planting, harvesting, and delivery. If the contractor provides seed, fertilizer and other inputs, he shares or assumes all the rights of decision making. The crop belongs to the contractor and he is responsible for its use or sale. The producer has, in essence, leased his land and equipment and is hired by the contractor to produce the crop. He is usually paid on a per unit basis; that is, so much per bushel, hundredweight, or ton.

From both the grower's and marketing organization's viewpoint, a marketing contract has certain advantages over a production contract. The major advantage to the marketing organization is an assured volume.

While additional rights or duties may be specified, a marketing contract usually allows growers to retain control over production decisions. Marketing contracts offer Virginia growers and shippers a way of overcoming some of their marketing difficulties. Growers and shippers also should consider using marketing contracts to obtain an assured volume of potatoes if they established a marketing cooperative or joint sales agency.

Marketing Agreements and Orders

Marketing agreements and orders, as authorized under the Agricultural Marketing Act of 1937, as amended, seek to establish and maintain orderly marketing conditions for part or all of the domestic production of a commodity. Basically, they are self-help programs and may be issued only when proper administrative procedure is followed and when they have been favorably voted upon by industry members.[3]

When a marketing order is issued, it becomes binding upon all producers and handlers of the commodity in the designated area. A marketing agreement affects only those who sign it. Most programs for commodities other than milk are under both marketing agreements and orders.

Programs Used by Potato Industry

Marketing agreements and orders used in potato-producing areas are designed to encourage more orderly marketing of better quality potatoes and to improve and stabilize prices and incomes to growers. At the time of this study, they were used in certain areas of California, Colorado, Idaho, Maine, Oregon, and Washington.

A marketing agreement and order program for early-summer potatoes produced in the Tidewater area of Virginia and North Carolina was in effect for the 1948, 1949, and 1950 seasons. This program authorized regulation of potato grades and sizes. This order has been inactive since 1950 but, technically, it could be reactivated by Virginia industry members if they desired.

Provisions of marketing agreement and order programs are administered by a committee of growers or handlers, or both. Committee members, nominated by growers and handlers, are appointed by the Secretary of Agriculture. Expenses incurred in administering a marketing order are financed by each handler paying his pro rata share in the form of assessments. (The term "handlers," which is usually defined in the order, may include processors, producers, associations of producers, and others engaged in handling of an agricultural commodity.) The committee also is responsible for obtaining compliance and for reporting violations of the terms and provisions of the order. But the primary responsibility of enforcing the order falls upon the Federal Government.

The provisions most widely used under Federal programs for potatoes include regulations of quality and pack. Regulation of quality is usually achieved by specifying the grade, size, or maturity of potatoes that may be shipped to market. Pack regulations may govern grade, size, quality, and net weight or arrangement of the commodity in containers of specific capacity or dimensions. In addition, other actions may be included such as conducting research and prohibiting unfair trade practices.

Evaluation of Impact on Industry

The impact of marketing agreement and order programs on prices received by growers throughout the potato industry is difficult to evaluate because: (1) The programs have been used only in certain producing areas and not on an industry-wide basis, and (2) it is difficult to calculate what prices

[3] For further information on marketing agreement and order programs, see ABC's of Federal Marketing Orders and Agreements for Fruits and Vegetables, PA-506, Agricultural Marketing Serv., U.S. Dept. Agr., June 1962.

would have been in those areas without the programs. However, growers and handlers who operate under these programs generally agree that grade and size regulations help improve the quality of potatoes marketed. These regulations influence price by eliminating poorer grades and undesirable sizes for which prices may ordinarily be discounted. In addition, marketing agreement and order programs provide a nucleus through which industry members may work together on an area-wide basis.

In summation, a Federal marketing agreement or order is an industry program available to growers and handlers in any commercial area. For successful operation, such a program requires full support from industry members. The provisions relating to quality control are most widely used in Federal programs. These provisions also may be adopted in State programs provided the State has legislation permitting them. Legislation to permit such programs would be required in Virginia before a State marketing and order program for potatoes could be set up.

Marketing Cooperatives

Potato-marketing cooperatives are not new to Eastern Shore of Virginia growers and shippers. In fact, the Eastern Shore of Virginia Produce Exchange, Inc., with headquarters at Onley, Va., was the first cooperative in the United States to market potatoes. It was organized in 1899, incorporated in 1900, and continued in existence until 1950.

An agriculture marketing cooperative is a business organization owned and controlled by producer members. Like other types of business organizations, it is established to perform certain functions. It may be organized to collect members' produce for sale; grade; assemble or package; or to perform other functions incidental to handling and marketing. In short, the chief aim of a cooperative is to help its members promote their own economic well-being by marketing farm products efficiently and effectively.[4]

Three basic underlying principles distinguish cooperatives from other types of businesses. These are:

1. Democratic control by members,

2. Limited returns on invested capital, and

3. Service to members at cost.

Democratic control is usually accomplished by the policy of "one-member, one-vote" or by voting in proportion to patronage. Because a cooperative serves its members at cost, members receive little or no direct return on capital invested. Any earnings or margins above the operating costs are returned to patrons in proportion to their patronage.

Although a marketing cooperative differs from other types of business with respect to the above principles, it is circumscribed by the same economic restrictions as any other business organization. Its success depends largely upon support from its producer-members. For successful operation, it must follow sound business practices; build adequate reserves; have regular audits by competent accountants; employ capable, honest managerial and other personnel; and exercise care in selecting a board of directors to represent the membership in formulating overall policy.

Cooperatives have been and continue to be instrumental in developing and promoting practices fundamental to good marketing. In potato-producing areas, they are important in achieving better quality, grade standardization, efficient methods of grading and packing, stabilization of prices, and more effective advertising, promotion, and selling programs. Cooperative marketing can help producers reduce their handling, assembling, and marketing costs as well as strengthen their market power.

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[4] What is a Co-op? Farmer Cooperative Serv., U.S. Dept. Agr. Bul. Reprint 6, page 3.

Joint Sales Program

Virginia potato industry members in recent years have expressed interest in developing an arrangement to consolidate and coordinate their selling activities. Elsewhere in the fruit and vegetable industry, a joint or coordinated sales approach has been used to provide benefits to members that they could not realize from individual efforts.

A joint sales program through which a grower-shipper consolidates his sales with others may be developed to: (1) Promote more orderly marketing by providing a more even flow of produce to market and by coordinating harvesting with market requirements; (2) reduce selling costs by handling larger volumes; (3) achieve greater control over size, quality, and pack; (4) perform more promotional activities; (5) better meet buyer requirements with respect to volume, quality, and services; and (6) achieve higher total sales value for production.

Certain basic requirements are essential for a successful joint or consolidated sales activity. Foremost among these is a need for the program. Second, grower-shippers must be willing to participate in and actively support such a joint activity. Third, there must be sufficient volume for successful operation. And fourth, the program must be organized and operated on a sound business basis. This includes having necessary capital, proper equipment and facilities, and qualified personnel to carry out desired functions.

To avoid legal problems, the membership of a consolidated sales program organized on a cooperative basis must be made up of agricultural producers. In such a grower-orientated sales program, the grower retains ownership and control over his product. A grower-owned and -controlled sales agency can be organized under provisions of the Capper-Volstead Act.[5]

A consolidated sales program involving shippers whose operations do not qualify them as agricultural producers may encounter some legal difficulties with antitrust statutes. In Virginia, however, many shippers are also growers; therefore, this may not present any problem. But competent legal counsel should be sought before any type of joint activity is undertaken.

While a consolidated sales program is not a cure-all for industry problems, it is a means through which Virginia grower-shippers may strengthen their sales efforts and thereby enhance their competitive position. Such a joint activity would enable participating members to gain more control over volume, quality, and other services. To organize a consolidated sales program in Virginia would require that grower-shippers relinquish some of their traditional independence. Organizing such a sales program would be a major step toward coordinating marketing practices and achieving a workable solution to marketing problems now facing the Virginia industry.

[5] For information on the Capper-Volstead Act and statutes applying to cooperatives refer to Legal Phases of Farmer Cooperatives, by L. S. Hulbert and Raymond Mischler, FCS Bul. 10, Farmer Cooperative Serv., U.S. Dept. Agr. Jan. 1958.

Appendix

Appendix table 1. --Percentage distribution of carlot unloads of white potatoes in New York, Philadelphia, Baltimore, and Washington by State of origin, July 1958-62

State of origin	Carlot unloads of potatoes in --				All
	New York	Philadelphia	Baltimore	Washington	
			Percent		
Virginia	39.5	42.4	48.8	35.3	41.5
California	36.6	24.4	12.9	20.8	23.7
North Carolina	4.8	3.4	12.4	18.6	9.8
Delaware	4.5	8.1	12.1	8.5	8.3
New Jersey	1.7	8.7	3.6	2.4	4.1
Others	12.9	13.0	10.2	14.4	12.6
Total[1]	100.0	100.0	100.0	100.0	100.0

[1] Includes truck unloads converted to carlot equivalents.

Source: Compiled from Fresh Fruit and Vegetable Unloads, 1958-62 Annual Summaries, Agricultural Marketing Serv., U. S. Dept. Agr.

Appendix table 2. --Potatoes: Season average price received by growers in Virginia, major competing States, and United States, 1940-62

Year	Average price received by potato growers in:		
	Virginia	Major competing States[1]	United States
	Dollars per cwt.		
1940	1.03	1.04	0.85
1941	1.28	1.33	1.31
1942	1.97	2.01	1.90
1943	2.33	2.47	2.10
1944	2.75	2.66	2.40
1945	2.87	2.71	2.30
1946	2.10	2.14	2.02
1947	2.75	2.63	2.67
1948	2.77	2.66	2.53
1949	2.35	2.46	2.10
1950	1.54	1.34	1.50
1951	2.12	2.33	2.68
1952	4.96	4.10	3.21
1953	1.73	1.53	1.31
1954	2.22	2.17	2.15
1955	1.81	1.96	1.77
1956	4.72	2.91	2.02
1957	1.61	1.66	1.91
1958	1.38	1.47	1.31
1959	3.12	2.55	2.27
1960	1.75	1.99	2.00
1961	1.55	1.61	1.36
1962	1.98	2.08	1.66

[1] California, Delaware, North Carolina, and New Jersey.

Source: Statistical Bulletins 251 and 291 and annual summaries of Potatoes and Sweetpotatoes, Crop Reporting Bd., U. S. Dept. Agr.

Appendix table 3. --Potatoes: Acreage harvested, yield, and production, United States and Virginia, 1940-62

Crop year	United States			Virginia		
	Acreage harvested	Yield per acre	Production	Acreage harvested	Yield per acre	Production
	1,000 acres	Cwt.	1,000 cwt.	1,000 acres	Cwt.	1,000 cwt.
1940	2,832	79.9	226,152	74.0	88	6,482
1941	2,693	79.3	213,418	74.0	55	4,085
1942	2,671	82.9	221,339	71.0	61	4,345
1943	3,239	85.0	275,332	78.0	74	5,756
1944	2,780	82.9	230,356	72.0	50	3,586
1945	2,664	94.4	251,639	65.0	78	5,070
1946	2,527	115.7	292,389	64.0	95	6,106
1947	2,001	116.6	233,391	58.0	92	5,324
1948	1,981	136.3	269,937	55.0	115	6,336
1949	1,755	137.3	240,950	45.0	105	4,721
1950	1,698	152.6	259,112	45.3	107	4,840
1951	1,348	145.2	195,776	38.2	112	4,290
1952	1,397	151.1	211,095	35.9	82	2,955
1953	1,536	150.8	231,679	38.3	101	3,877
1954	1,413	155.4	219,547	34.0	90	3,060
1955	1,405	162.1	227,696	35.7	113	4,024
1956	1,371	179.3	245,792	33.6	111	3,715
1957	1,359	178.4	242,522	34.6	90	3,104
1958	1,428	186.9	266,897	31.4	113	3,551
1959	1,336	183.9	245,799	29.2	107	3,122
1960	1,396	184.3	257,435	31.6	143	4,521
1961	1,496	196.3	293,594	32.4	148	4,784
1962	1,377	193.8	266,703	29.0	129	3,732

Source: Statistical Bulletins 251 and 291 and annual summaries of Potatoes and Sweetpotatoes, Crop Reporting Bd., U. S. Dept. Agr.

Appendix table 4.--Potatoes: Acreage harvested, yield per acre, and production in United States by region, 1940, 1950, and 1960

Region	Percent of total acres harvested			Percent of total production			Yield per acre		
	1940	1950	1960	1940	1950	1960	1940	1950	1960
	Percent			Percent			Hundredweight		
North Atlantic	22.7	23.3	22.7	29.6	32.2	27.8	104	211	226
North Central	42.6	29.8	26.9	30.7	22.6	20.8	57	116	143
South Atlantic	10.0	11.0	9.3	9.1	6.8	6.6	72	95	130
South Central	11.1	9.5	5.5	6.5	3.5	2.9	47	56	97
Western	13.6	26.4	35.6	24.1	34.9	41.9	142	201	216

Source: Compiled from Statistical Bulletins 251 and 291 and from 1960 annual summary of Potatoes and Sweetpotatoes, Crop Reporting Bd., U. S. Dept. Agr.

Appendix table 5. --Potatoes: Production, acreage harvested, and yield per acre of 10 leading producing States, 1940 and 1960

Leading potato producing States, 1940				Leading potato producing States, 1960			
State	Production	Acreage harvested	Yield per acre	State	Production	Acreage harvested	Yield per acre
	1,000 cwt.	Acres	Pounds		1,000 cwt.	Acres	Pounds
Maine	25,632	160,000	16,000	Idaho	43,078	235,000	18,300
Idaho	19,584	128,000	15,300	Maine	33,663	147,000	22,900
New York	17,074	199,000	8,600	California	28,757	102,900	27,900
Minnesota	13,336	239,000	5,600	New York	20,340	87,000	23,400
California	13,092	70,000	18,700	North Dakota	14,336	112,000	12,800
Pennsylvania	12,546	170,000	7,400	Minnesota	13,351	105,300	12,700
North Dakota	10,626	154,000	6,900	Colorado	11,922	56,000	21,300
Michigan	10,529	214,000	4,900	Washington	10,075	35,000	28,800
Wisconsin	8,208	180,000	4,600	Winconsin	9,327	52,000	17,900
Colorado	7,839	67,000	11,700	Oregon	7,830	35,000	22,400
Total	138,466	1,581,000		Total	192,679	967,200	
U.S. total	226,152	2,832,100		U.S. total	257,435	1,396,900	
Percent of U.S. total	61	56		Percent of U.S. total	75	69	

Source: Statistical Bulletin 251 and annual summary of Potatoes and Sweetpotatoes, Crop Reporting Bd., U. S. Dept. Agr.

Appendix table 6. --Number of farms in the United States and Virginia reporting potato production, with acreage and quantity harvested, 1949 and 1959

Location and size of farm	Farms reporting		Acres harvested [1]		Quantity harvested	
	1949	1959	1949	1959	1949	1959
	Numbers		Acres		1,000 cwt.	
United States [2]						
Under 1 acre	1,486,200	635,400	148,300	38,200	13,696	5,625
1 to 9.9 acres	132,900	29,500	286,600	68,000	24,868	7,631
10 to 49.9 acres	25,700	13,500	542,900	326,500	88,472	62,594
50 or more acres	5,100	6,500	536,300	767,700	92,881	148,290
Total	1,649,900	684,900	1,514,100	1,200,400	219,917	224,140
Virginia						
Under 1 acre	80,404	45,980	7,321	2,197	721	372
1 to 9.9 acres	3,254	861	6,734	1,243	512	69
10 to 49.9 acres	703	211	14,454	5,035	1,699	583
50 or more acres	84	138	8,780	15,858	1,044	1,903
Total	84,445	47,190	37,289	24,333	3,976	2,927

[1] Does not include acreage for farms with less than 20 bushels harvested.
[2] Includes Alaska and Hawaii.

Source: Census of Agriculture, 1949 and 1959, U. S. Bureau of the Census.

Appendix table 7. --Potatoes: Utilization of crops, 1940 and 1958-1962

Potato utilization	Crop year					
	1940	1958	1959	1960	1961	1962
	1,000 cwt.					
Sales						
Tablestock	n. a.	144,874	149,123	149,199	153,337	150,593
Processing						
Chips and shoestrings	n. a.	17,063	20,085	21,018	22,642	24,080
Dehydration	n. a.	5,917	7,656	10,104	8,518	9,280
Frozen french fries	n. a.	7,352	8,745	13,373	15,911	15,946
Other frozen uses	n. a.	911	1,173	1,669	2,227	2,437
Canned potatoes	n. a.	1,250	1,185	1,572	1,458	1,485
Other canned uses	n. a.	1,614	1,262	1,237	1,317	1,262
Total processing	n. a.	34,107	40,106	48,973	52,073	54,490
Total food sales	n. a.	178,981	189,229	198,172	205,410	205,083
Other sales						
Starch and flour	n. a.	18,387	7,718	10,177	20,493	11,285
Livestock feed	n. a.	18,918	6,607	5,348	20,340	7,913
Seed	n. a.	13,314	13,583	14,823	13,823	14,622
Total	n. a.	50,619	27,908	30,348	54,656	33,820
Total sales[1]	151,891	229,600	217,137	228,520	260,066	238,903
Nonsales						
Seed used on farms (where grown)	14,059	7,134	7,166	7,707	7,452	6,301
Household uses	37,859	10,433	5,920	5,449	5,236	4,843
Feed, shrinkage, and loss	22,343	18,562	15,576	15,759	20,840	16,656
Total	74,261	36,129	28,662	28,915	33,528	27,800
Total production	226,152	265,729	245,799	257,435	293,594	266,703

[1] No breakdown of total sales available for 1940 crop. It is estimated that about 2 percent of the 1940 crop used for food was processed.

Source: Statistical Bulletin 251 and 1958-1962 annual issues of Irish Potato Utilization, Crop Reporting Bd.; U. S. Dept. Agr.

Appendix table 8.--Potatoes: Per capita consumption, United States, for selected years[1]

Year	Per capita consumption	Year	Per capita consumption
	Pounds		Pounds
1910	198	1955	107
1920	140	1956	99
1930	132	1957	106
1940	123	1958	101
1950	106	1959	101
1951	113	1960	102
1952	101		
1953	106	1961	102
1954	106	1962	99

[1] Based upon farm weight equivalent. Includes potatoes used in mixtures, flour, dehydration, chips, and shoestrings. (These uses accounted for over 15 percent of totals in recent years). Excludes canned and frozen potatoes.

Appendix table 9.--Buyers' ratings of the Virginia potato industry as better than, equal to, or poorer than other supply sources, by factors, 1962

Factor	Buyers' ratings			Total number of buyers
	Better	Equal	Poorer	
	Buyers			
Time required to make delivery	8	28	1	37
Meeting commitments specified by buyers	1	34	2	37
Adequacy of supply	2	32	3	37
Size of container offered	-	34	2	36
Type of container offered	-	34	2	36
Condition of product on arrival	3	26	5	34
Reputation for quality	3	22	9	34
Grading practices	4	22	11	37
Varieties available	1	22	13	36
Sizing practices	-	21	15	36

Appendix table 10.--Chainstore market-city buyers' preferences for potatoes, 1962

Potato characteristics	Preferences of buyers in--				Total number of buyers
	New York	Philadelphia	Baltimore	Washington	
	Buyers				
Grade					
U.S. No. 1	5	5	3	5	18
U.S. Fancy	1	-	-	-	1
Total	6	5	3	5	19
Type					
Round whites	2	4	3	5	14
Long whites	4	1	-	-	5
Total	6	5	3	5	19
Washing					
Washed	4	2	-	4	10
Unwashed	2	3	3	1	9
Total	6	5	3	5	19
Cooling					
Precooled	4	1	2	4	11
Uncooled	1	4	1	1	7
Total	5	5	3	5	18
Container type					
Burlap bags	-	1	1	2	4
Paper bags	2	2	2	1	7
Burlap and paper bags	3	2	-	2	7
Corrugated paper cartons	1	-	-	-	1
Total	6	5	3	5	19
Size					
Minimum, 2 in.	2	1	-	1	4
Minimum 2 1/2 in.	-	-	1	2	3
Minimum 2 1/4 and maximum 3 1/2 in.	1	2	-	-	3
Minimum 2 1/2 and maximum 3 1/2 in.	-	-	2	2	4
Weight range of 7-12 or 10-14 ounces.	2	-	-	-	2
Other[1]	1	2	-	-	3
Total	6	5	3	5	19

[1] Other preferences were for size A, 2 1/4-inch minimum, and potatoes within a size range of 2 1/2-3 inches.

Appendix table 11.--Chainstore buyers' preferences for potato varieties and container sizes, by market city, 1962[1]

Potato varieties and container sizes	Preferences of buyers in--				All buyers ranking
	New York	Philadelphia	Baltimore	Washington	
	Rank[2]				
Variety					
Katahdin	3	1	3	1	1
Pungo	2	3	2	2	2
Sebago	4	4	1	3	4
Other[3]	1	2	-	-	3
Container size					
5-pound	3	4	4	-	4
10-pound	1	1	2	3	1
25-pound	4	3	3	-	5
50-pound	2	4	1	2	2
100-pound	3	2	-	1	3

[1] Total included 6 buyers in New York, 5 in Philadelphia, 3 in Baltimore, and 5 in Washington.
[2] Weighted and ranked according to first, second, third, and fourth choices expressed by buyers.
[3] Cobbler, Chippewa, and California White Rose.

Appendix table 12.--Chainstore buyers' ratings of Virginia Potato industry on selected factors as compared to other supply sources, by market city, 1962

Selected factors and rating of Virginia industry	Location of market-city buyers				Total number of buyers
	New York	Philadelphia	Baltimore	Washington	
	Number				
Varieties available					
Better than other sources	-	1	-	-	1
Equal to other sources	3	4	3	3	13
Poorer than other sources	3	-	-	2	5
Grading practices					
Better than other sources	-	-	-	-	0
Equal to other sources	1	4	2	3	10
Poorer than other sources	5	1	1	2	9
Sizing practices					
Better than other sources	-	-	-	-	0
Equal to other sources	1	3	1	2	7
Poorer than other sources	5	2	2	3	12
Size of containers offered					
Better than other sources	-	-	-	-	0
Equal to other sources	5	5	2	5	17
Poorer than other sources	1	-	1	-	2
Type of containers offered					
Better than other sources	-	-	-	-	0
Equal to other sources	5	5	3	4	17
Poorer than other sources	1	-	-	1	2
Adequacy of supply					
Better than other sources	-	-	-	-	0
Equal to other sources	5	4	3	5	17
Poorer than other sources	1	1	-	-	2
Time required to make delivery					
Better than other sources	-	2	-	2	4
Equal to other sources	6	3	2	3	14
Poorer than other sources	-	-	1	-	1
Condition of product upon arrival					
Better than other sources	-	1	-	-	1
Equal to other sources	2	3	2	5	12
Poorer than other sources	2	1	1	-	4
Meeting commitments specified by buyers					
Better than other sources	-	-	-	-	0
Equal to other sources	6	3	3	5	17
Poorer than other sources	-	2	-	-	2
Reputation for quality					
Better than other sources	-	1	-	1	2
Equal to other sources	1	3	2	2	8
Poorer than other sources	4	1	1	2	8

Appendix table 13.--Number of chainstore market-city buyers obtaining over one-half of their new potatoes from Virginia and other supply areas at shipping point or terminal market, by market city, 1962

Point of purchase	Location of Market-city buyers				Total number of buyers
	New York	Philadelphia	Baltimore	Washington	
	Number				
Virginia					
At shipping point from					
Growers or shippers	2	2	-	1	5
Brokers or agents	1	1	-	3	5
At terminal market from					
Wholesalers and handlers	1	-	2	-	3
Brokers or agents	1	1	-	1	3
Other supply sources					
At shipping point from					
Growers or shippers	2	2	-	1	5
Brokers or agents	1	1	-	3	5
At terminal market from					
Wholesalers and handlers	1	-	2	-	3
Brokers or agents	2	2	-	1	5

Appendix table 14. --Major changes which have helped improve the quality of Virginia potatoes and those from other supply areas, as noted by 12 chainstore market-city buyers, 1962

Changes noted, by area	Times mentioned by market-city buyers in --				Total responses[1]
	New York	Philadelphia	Baltimore	Washington	
Virginia[2]					
Change in varieties, primarily from Cobbler to to Pungo	4	4	-	1	9
Improved grading and sizing practices	1	1	1	-	3
Increased amount of precooling	-	-	1	1	2
Increased amount of brushing	-	-	1	1	2
Better production practices	-	1	-	-	1
Other supply areas[3]					
Some areas are marketing more mature and uniform quality potatoes	2	-	-	3	5
Adhering to more rigid quality standards	1	-	-	-	1
Keeping poorer quality off market	-	-	1	-	1
Performing more precooling	-	-	1	-	1
Some areas use State seal quality programs	-	1	-	-	1

[1] Some buyers gave more than one response.
[2] 12 buyers responded.
[3] 7 buyers responded.

Appendix table 15.--Changes relating to shipping-point marketing practices in Virginia and other supply areas, as noted by 16 chainstore market-city buyers, 1962

Changes noted, by area	Times mentioned by market-city buyers in--				Total responses
	New York	Philadelphia	Baltimore	Washington	
Virginia					
More washing	4	2	-	3	9
More packing of consumer-size bags	-	1	1	1	3
More 50-pound containers available	-	-	2	-	2
More paper containers offered	-	-	1	1	2
Other supply areas					
More washing	1	2	-	-	3
More packing of consumer-size bags	1	-	1	1	3
More promotion - advertising	1	1	1	-	3
More specific sizes available and better sizing practices	-	1	1	1	3
More use of master containers and pallets	-	1	1	-	2
Some use of point-of-sale material and State seal brands	2	-	-	-	2
More precooling and use of polyethylene bags	1	-	-	1	2
More growers selling direct	-	-	-	1	1

Appendix table 16.--Ways Virginia potato growers and shippers might improve their marketing practices, as suggested by 19 chainstore, market-city buyers, 1962

Suggestions	Times mentioned by market-city buyers in--				Total responses[1]
	New York	Phila-delphia	Balti-more	Wash-ington	
Production					
Let potatoes mature before harvesting	-	2	1	-	3
Develop new varieties	2	-	-	-	2
Preparation for market					
More strict grading and sizing	3	1	-	2	6
Use master containers for 10-pound bags	1	3	-	-	4
More washing and precooling	1	-	-	1	2
Pack more mixed loads of 5-, 10-, 25-pound bag sizes	-	1	1	-	2
Reduce field heat without causing potatoes to 'sweat'	-	-	1	-	1
Marketing					
Stabilize prices	-	2	-	2	4
Balance harvest with orders	1	3	-	-	4
Do more advertising and promotion	1	1	2	-	4
Keep poorer quality off market	-	-	2	1	3
Reduce time potatoes stay on trucks before moving to market	-	1	-	1	2
Have better communications within industry	-	-	-	1	1
Total[1]	9	14	7	8	38

[1] Some buyers gave more than one response.

Other Publications Available

Buying Farmers' Stock Peanuts in the Virginia-North Carolina Area. Marketing Research Report 555. Gilbert W. Biggs, Richard A. King, and E. Walton Jones.

Coordinated Marketing for Florida Fresh Citrus Shippers: Views on its Need and Feasibility. Marketing Research Report 492. Fred E. Hulse.

Economic Considerations in Marketing Sweetpotatoes From the Eastern Shore of Virginia. Marketing Research Report 487. Clyde B. Markeson, Frank W. Bell, and Leo F. Zimmerman.

Fresh Fruit and Vegetable Marketing Organizations in the Northeastern and Central States. FCS General Report 84. Martin A. Blum.

Fruit and Vegetable Bargaining Cooperatives. FCS Circular 25. Wendell M. McMillan.

Pooling and Other Grower Payment Methods as Used by Local Fruit, Vegetable, and Tree Nut Cooperatives. FCS General Report 67. Clyde B. Markeson.

Organizing A Farmer Cooperative. FCS Circular 18.

How Farmer Cooperative Service Works. FCS Information 26.

A copy of each of these publications may be obtained upon request while a supply is available from:

Farmer Cooperative Service
U.S. Department of Agriculture
Washington, D.C. 20250